***REMARKS***

The Office Action mailed September 22, 2005, has been carefully reviewed and, by this Response, Applicants request reconsideration. Claims 15, 19-28, 30 and 32-34 are pending in the application. Claims 15, 27, 28 and 30 are independent.

The Examiner rejected claims 15, 19, 21-23, 26, 27, 30 and 32-34 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,234,423 to Hirahara et al. ("Hirahara"). Under 35 U.S.C. 103(a), the Examiner rejected claim 20 as being unpatentable over Hirahara in view of U.S. Patent No. 3,102,559 to Koppelman et al. ("Koppelman").

As included in each of claims 15, 27, 28 and 30, the present invention is directed to *a fitting* used in an aircraft to connect a movable part of the aircraft with a structural component thereof. The fitting is made of *a synthetic composite material according to a resin transfer molding method* and includes a carbon fabric as a reinforcement element. The fitting is made *from the same synthetic composite material as that from which the movable part is made*, and the movable part is a spoiler, a landing flap or a control surface. This combination is not shown or suggested by Hirahara.

Hirahara is directed to an airfoil structure constructed of a composite material upper skin 11, a composite material lower skin 12, and a spar 13 which are bonded by a pasty thermosetting adhesive to form a single structure (see column 4, lines 50-60). The skins are formed by laminating composite prepreg 18 on a steel skin forming jig 17 (see column 4, line 61 et seq.). There is no disclosure of *a fitting* made of *a synthetic composite material according to a resin transfer molding method,* nor is there any disclosure of such a fitting made of *the same composite material as the movable part.*

The Examiner appears to be relying upon the spar 13 as including a fitting, based upon the unnumbered vertical members extending between the top and bottom flanges 13a and generally parallel with the web 13b as shown in Figures 1 and 2. These vertical members are not discussed in the specification of Hirahara and they do not appear in the remaining drawings (Figures 3-17) which set forth in detail the actual composite airfoil structure to which Hirahara is directed. Specifically, *there is nothing in Hirahara to suggest that these vertical members are fittings made of a synthetic composite material according to the resin transfer molding method* and *made of the same material as the movable part.*

Instead, as is conventionally known, the spar in Hirahara is a main longitudinal member of an aircraft wing that carries the ribs 14. The spar 13 in Hirahara has a U-shaped cross-section (column 6, lines 49-56) made of flanges 13a and a web 13b (column 5, lines 23-32), as illustrated in Figures 1, 2, 9, 11, 12 and 14. In an alternate embodiment shown in Figure 16, comparable U-shaped front spar 53A and rear spar 53B are shown, and described at column 7, lines 23-29.

During construction of the composite structure according to Hirahara, a laminate of composite prepreg is formed into the illustrated U-shaped cross sectional shape and molded under heat to form the spar (see column 6, lines 6-11). The spar is then fitted to the upper and lower skins, as shown in Figure 9, and pressed by load application blocks 34 in a bonding jig 30 to form a single structure (see Figures 11 and 12; column 6, lines 18-29).

It is clear from the disclosure of Hirahara as a whole, that the airfoil produced by Hirahara includes the U-shaped spar 13 only, as bonded to the upper and lower skins. If whatever is represented by the unnumbered vertical members shown in Figures 1 and 2 were part of the composite structure, this would have been discussed and described in the Hirahara specification since that would be highly relevant to the disclosed invention. It cannot be

inferred from the incidental inclusion of these unnumbered and unnamed vertical members in two of the overview drawing figures that such members are composite material made as part of the composite structure represented by the skins and the spar. Instead, it is evident from the complete absence of any discussion beyond the spar flanges 13a and web 13b that whatever is represented by the vertical unnumbered members of Figures 1 and 2 is a separate component added *subsequent to* production of the composite structure. And conventional wisdom would dictate that such a component, if a fitting, would *not* be made of composite but rather would be made of metal such as aluminum or titanium alloys.

That the vertical unnumbered members are added at a later point in time which is not addressed by Hirahara is further evidenced by the design of the bonding jig 30 and the positioning of the load application blocks 34. These blocks, which are designed to exert pressure within the U-shaped portion during the bonding process, could not be applied as shown in Figures 11 and 12 to form the single structure to which Hirahara is directed if a fitting component, composite or otherwise, was also being formed or connected in the U-shaped portion between the spar flanges 13a.

Further, the fitting according to the present invention is claimed as *connecting the movable part to the structural part of*

*the aircraft*. Hirahara is silent with respect to any fitting for such purpose.

What Hirahara does disclose are the advantages of forming and bonding the upper and lower skins, ribs and spar into a single movable component structure so as not to require fastening elements within the movable component itself. However, this is not comparable to the forming of a fitting *for connecting the movable part to the structure of the aircraft*. And it is the forming of such a fitting, from a composite that is the same material as the moving part instead of conventional metal fittings, thereby eliminating the problems known in the prior art which arise from different thermal expansions, that is claimed by the present invention. Such a connection fitting is subjected to far more signficant loading stresses than those imposed upon the movable part as a structural unit to which Hirahara is limited.

Accordingly, the present invention as set forth in each of claims 15, 27, 28 and 30 is not anticipated by Hirahara and is not obvious in view thereof. Nor does Koppelman provide any relevant teaching relating to a composite fitting made to connect a movable part to a structural part as claimed.

With respect to the product-by-process limitation in the independent claims, which each specify that the fitting is made by

the resin transfer molding method, a fitting made by this process has distinctive structural characteristics that are distinguishable over fittings made by other processes (see page 4, lines 23-34; page 6, last paragraph extending onto page 7). As provided in the U.S. Manual of Patent Examining Procedure (M.P.E.P.), when the manufacturing steps would be expected to impart distinctive structure characteristics, the structure implied by the process steps in a product-by-process claim should be considered when assessing patentability. M.P.E.P. 2113.

With this amendment and the foregoing remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney so that the present application can receive an early Notice of Allowance.

Respectfully submitted,

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